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Office of Science and Technology

ALLOCATION OF THE SCIENCE BUDGET

1997-98

15 January 1997

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COUNCIL FOR THE CENTRAL LABORATORY OF THE RESEARCH COUNCILS (CCLRC)

Chairman and

Chief Executive

Dr Paul R Williams CBE



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1. The Government remains committed to its policy for science, engineering and technology as set out in the 1993 White Paper *Realising Our Potential* which is to promote high quality basic, strategic and applied research, and related postgraduate training, thereby enhancing the United Kingdom's industrial competitiveness and quality of life.

THE SCIENCE AND ENGINEERING BASE

2. The Science and Engineering Base encompasses the research and postgraduate training capacity in universities and colleges of higher education, and in the Institutes, Units and Centres operated by the Research Councils together with the central facilities supported by the Councils. Its role is to train and develop skilled and innovative people and to generate and transmit knowledge

3. The largest component of the Government's support for the Science and Engineering Base is the Science Budget, which provides funding for the Research Councils, the Royal Society and the Royal Academy of Engineering. The other avenue of support is through the Higher Education Funding Councils. In addition the Science and Engineering Base receives commissions and contracts for research from Government Departments, charities and from abroad, notably the EU Framework programme. Support from other DTI programmes that impact on the Science and Engineering Base includes the Crusade for Biotechnology and the Information Society Initiative. Details of the breakdown of the £3.4 billion income in 1994-95 to the Science and Engineering Base from all sources are shown in Figure 2.

4. All of the HE Funding Councils' research funds and over 90% of the research funding provided by the Research Councils is spent in support of basic and strategic research.

THE SCIENCE BUDGET

5. Following the detailed review of the Science Budget portfolio undertaken by the Director General of Research Councils (DGRC) in 1994 and published in May 1995¹, a major reorientation of the Science Budget portfolio towards White Paper objectives was set in train.

6. In the allocations announced in February 1994 and 1995, three main areas were targeted: improving interaction with industry and commerce; enhancements to basic and strategic science; and enhancements to people related programmes. The allocation of the 1996-97 Science Budget, announced on 16 January 1996 by the President of the Board of Trade, consolidated and developed these important initiatives. Overall, there has been a significant reorientation within Councils' programmes and about 70% of their research activities are in Foresight priority areas.

¹ The Director General of Research Councils' review of the Science Budget Portfolio, Office of Science and Technology, 16 May 1995

7. The Science Budget for 1997-98 is **£1,330.3 million** and has been maintained at the level of the planning figure previously announced in November 1995. It is also £18 million more than the Science Budget announced for 1996-97 and it will be used to maintain the momentum in the key areas identified for national research.

8. In announcing the allocations to the Research Councils and others set out in Figure 1 and Table 1, the President of the Board of Trade recognises the need to sustain responsive mode funding, studentships and other commitments of the Councils. This year only one additional new programme - to enhance the underpinning research into **transmissible spongiform encephalopathies** - is planned:

Transmissible Spongiform Encephalopathies (TSEs)

9. The co-ordination of the UK's research effort into TSEs is led by a group involving all the main funders and chaired by the Director of R&D at the Department of Health, Professor John Swales. The UK strategy for research and development into the human health aspects of TSEs was published on 11 November. In line with this strategy, the BBSRC and MRC will be funding further research amounting to an additional £7/5/5 million in total over three years. Although an indicative allocation has been made to each Council, the jointly administered fund will be available to both Councils to ensure that the highest quality research in this field is properly co-ordinated. This money brings the total programme funded by MRC and BBSRC to some £30 million over three years and will enable urgent work of national priority in this key area.

OTHER PRIORITIES

10. Responsive mode support and studentships remain one of the best ways of sustaining the quality and vitality of the key underpinning basic science disciplines. The President therefore wishes priority to be given to these. He also wishes priority to be given to:

- *EQUAL*
- a new round of ROPA/PIPSS (£6 million);
- a further equipment initiative (£5 million) to be operated as part of a joint scheme involving the HE Funding Council for England;
- a further increase of £200 pa in the research training support grant (RTSG) from £800 to £1,000, an increase of 67% in two years, at a cost of £1.04 million, £2.08 million in a full year.
- Foresight

EQUAL - Extend Quality Life

11. One of the principal issues facing Britain in the years ahead is a growing elderly population. To illustrate using data from the Netherlands, a man of 65, with a total life expectancy of 14 years, can expect on average for five of those years to be disabled. The figures for women are even more alarming. A woman of 65, and a total life expectancy of 19 years, can expect on average for 11 of those years to be disabled. And again, using data from the US, one man in 7 and one woman in 3 over 65 will spend one year or more in a nursing home before dying.

12. The President of the Board of Trade has set an objective of extending quality life. The aim of EQUAL is to draw together disparate research activities that bear on the extension of the active period of people's lives, thereby helping individuals to achieve a better lifestyle, participate more fully and actively, and avoid or alleviate the effects of disability. It complements and contributes to the Department's Crusade for Biotechnology, launched last summer, which provides a framework for co-ordinating Government activities aimed at enhancing the United Kingdom's exploitation of biotechnology.

13. The potential benefits of EQUAL are widespread, obvious and substantial: better health, more active life, better quality of life, greater continuing participation in society, a lighter burden on society, as well as the generation of considerable business opportunities for UK firms to exploit on the world's markets. Advances under EQUAL will come through scientific discovery, engineering development and industrial/ health service involvement and application.

14. The objective of EQUAL - to extend quality life - spans all the Research Councils. Biomedical research is at the heart of it, but EQUAL is a clear example of an important target which can only be reached through bringing to bear the combined resources, expertise and capacity for innovation of the UK's science and engineering base.

15. The Research Councils are already carrying out a number of programmes and activities relevant to EQUAL aims and others are in the planning stage. In addition, 5 projects relating to EQUAL objectives were successful in the Foresight Challenge competition, winning up to £8m of Challenge funding and attracting a further £18 million in additional funds from industry and other sponsors. These projects included research into ways of detecting and preventing Alzheimer's disease, the causes and consequences of strokes, and improvements in the discovery and design of drugs for older people. Next year the Councils expect to spend some £15 million on EQUAL.

ROPA

16. The ROPA (*Realising Our Potential Awards*) scheme was launched in February 1994 with the dual aims of first, enhancing collaboration between the science and engineering base and industry and second, providing funds to researchers, who are already interacting with industry, to carry out research in an area of their own choice. ROPA was run on a pilot basis in 1994, and in 1995 and 1996 it was extended to all Research Councils. 973 ROPA awards worth £89.6m have now been made to researchers. According to a recent study of attitudes in universities, to be published, the ROPA scheme is one of a number of mechanisms which are clearly influencing researchers to seek more industry funding and further collaboration with industry.

17. The ROPA scheme will be at a similar level to 1996, and as before focused on particular areas in order to keep within financial bounds. Research Councils will continue to use ROPA as a key mechanism aimed at encouraging the development of academic/industry interaction in specific sectors/disciplines. Each participating Council will announce the sectors to be covered in each year's competition and will expect to ensure full coverage of its portfolio over a period of time. The 1997-98 competition is expected to result in total awards of about £20 million with some £6 million paid in 1997-98. This expenditure and future commitments have been taken into account in setting the Research Councils' allocations and planning figures, and the scheme is now incorporated into Councils' baseline programmes.

18. The key rules for ROPA remain as before. To qualify a researcher needs to be funded by industry for strategic research and his/her proposal, which should *not* be in collaboration with industry, must meet simple tests of originality and practicality. But the nature of ROPA should not be misunderstood; it is a responsive mode award which funds work defined solely by the researcher.

Scientific Equipment

19. The provision of leading-edge equipment in higher education institutions continues to be an area of concern for the science and engineering community. The problem is particularly acute given the high cost of such equipment, particularly in the molecularly based sciences. This point was confirmed in the report following Sir John Cadogan's review of the work funded by the Science Budget.¹

20. In 1996, there was a joint Research Council/Higher Education Funding Council research equipment funding initiative in Technology Foresight generic science and technology priority areas, with matching funding from users and clients (e.g. industry, charities, Government Departments etc.). The initiative was run as two co-ordinated competitions:

competition A - to fund bids from higher education institutions for scientific and engineering equipment costing up to £250,000.

competition B - to fund bids from higher education institutions for research equipment costing over £250,000.

The initiative was overseen by a steering group which included representatives of participating Funding and Research Councils and OST. In total some £25 million has been made available this year for the scheme; with matching funds from industry and other sponsors the total sum available exceeds £50 million which is being applied to some 175 projects in over 50 institutions.

21. This year DfEE announced £20m of challenge funding for research equipment. Further contributions are under consideration by SHEFC and HEFCW. The allocations to the Research Councils provide £5m to set alongside this money to fund a second round of the Joint Research Equipment Initiative which, with matching funding from industry and other sponsors, should yield some £40-50 million for research equipment.

Research training

22. The Research Training Support Grant (RTSG) is paid to departments in institutions as a contribution towards the incidental costs incurred in the training of Research Council supported research students the orientation of whose research is entirely at the discretion of the student, the supervisor and, where relevant, any industrial or other partner. As the grant follows the student it provides a well-focused form of funding. The RTSG was increased from £600 pa to £800 pa last year. This year's allocations provide for the RTSG to be increased by a further £200 pa (the ESRC allocation for RTSG/UK field work will be increased from £400 to £440 pa), thereby benefiting the research of some 12,000 students and their supervisors.

Foresight

23. A large number of outline proposals for the Foresight Challenge were received, and full proposals related to Science and Engineering Base funding were requested. A total of 24 projects will be funded and £5 million has been allocated in 1996-97, followed by £10 million, £13 million and £3 million in the subsequent three years (1997-98 to 1999-2000). The total expenditure on these projects will be £92 million.

24. The Foresight Challenge was a great success both in terms of the 67% outside funding it attracted and the new collaborations that were created, including some with small and medium sized firms. The scope and nature of a second phase is being considered with sources of additional funding being sought from elsewhere in Government. In the meantime, a Science Budget contribution of £5 million over the three years 1998-99 to 2000-01 has been set aside.

25. Consideration is being given to brigading under the Foresight banner a number of DTI schemes including LINK and the Teaching Company Scheme, which are also supported by the Research Councils, and the DTI SMART scheme.

People-related programmes

26. The Collaborative Awards in Science and Engineering (CASE) scheme is used to fund research students who are jointly supervised by academics and employers drawn from collaborating universities and firms. In 1994 the industrial CASE scheme was introduced where allocations were made to firms who had experience of CASE awards so that they could choose the academic partner.

27. The EPSRC now intends to award a CASE studentship on request to all new members of faculty in departments which already receive a quota of post graduate awards. The President warmly endorses this approach to providing studentships for young members of staff and other Councils are considering ways of providing similar support.

28. A major programme within the Royal Society's portfolio is its University Research Fellowship (URF) scheme, which supports the highest quality post doctoral fellows, who have usually had one or more fixed term post-doctoral appointments. Two years ago additional funds were provided to pilot a junior version of this scheme, the Dorothy Hodgkin Fellowships. These have proved very promising and, with some support from industry, the Society will now place the scheme on a permanent basis.

29. The mission of the Royal Academy of Engineering is to pursue, encourage and maintain excellence in the whole field of engineering. To this end it runs a varied range of schemes, targeting all levels from the assistance of young researchers who wish to present papers or participate in collaborative research overseas, to the funding of chairs and senior research fellowships in universities. These activities are funded in part from the Science Budget, but also receive significant support from charitable trusts and industry.

Council for the Central Laboratory of the Research Councils (CCLRC)

30. £1.45 million has again been set aside for CCLRC, which is available to continue the restructuring programme begun in 1995-96.

Public Understanding of Science, Engineering and Technology

31. The OST initiatives budget will continue to provide some £1.25 million for the promotion of public understanding of science engineering and technology. This budget funds a number of activities of which SET 98, the 1998 National week of science, engineering and technology, will be the flagship. Other key activities will be the provision of small grants administered through the Committee on the Public Understanding of Science (COPUS). It will also, as in 1996-97, fund some projects in support of the OST's Women in Science initiative. Another important activity for 1997, for which support is being provided from both OST and elsewhere within the DTI is the Year of Engineering Success (YES), which will be launched by the President of the Board of Trade on 22 January 1997. A major review of PUSSET work recently completed has highlighted the need to focus on activities that will maximise impact.

Other OST Initiatives

32. The other main activities currently supported by OST initiatives include: OST's subscription to CEST; the Committee on Marine Science and Technology; the OECD megascience forum; the annual OST Academe-Industry Collaboration Competition and some fixed term bilateral international funding agreements with South Africa, India and Israel.

High-performance computing

33. High performance computing (HPC) is not a major scientific objective in its own right, rather it is a tool like other major capital facilities for which requirements are determined by scientific needs. With this in mind, funding arrangements are being changed so that each Council will decide how much it will spend on HPC in the light of its own scientific priorities.

34. From 1996-97 the running costs were distributed to the relevant Research Councils, but the planning figures for 1997-98 still retained £10 million for capital provision. This capital has now been allocated to Councils. Private Finance Initiative solutions are under careful examination, such as the provision of a specified level of service by a private sector organisation or a joint private and public sector consortium.

INTERNATIONAL SUBSCRIPTIONS

35. Since 1994, variation in the ESA and CERN subscriptions caused by changes in Net National Income or exchange rates have been top sliced from the Science Budget as a whole and hence borne by all Research Councils rather than by PPARC alone. In 1996 some £18 million was required, although £3 million of this was paid in 1995-96.

36. Last year, agreement was reached at the ESA Council to freeze the budget of the Science Programme in cash terms for the next 5 years, and only compensate for inflation to the extent that it is above 3%.

37. As a result of a joint UK-German initiative, agreement was reached in 1994 to freeze the CERN budget until 1997, which resulted in a saving to PPARC of £70 million over the life of the project.

38. The stronger than forecast pound means that it has been possible to reduce the previous £18 million provision for 1997 to provide protection to PPARC from exchange rate fluctuations to £8.8 million. It should be noted that this effect would reduce the cost of the UK's membership of CERN to an estimated £65 million in 1997. The equivalent cost for 1996 was £74 million and, in 1994, £58 million.

39. In addition to the savings arising from exchange rate fluctuations, as a result of a further joint UK-German initiative, it has been agreed that, compared to the 1994 agreement, the CERN budget should be reduced by 7.5% in 1997, by 8.5% in the years 1998-2000 and by 9.3% thereafter. This will reduce the CERN subscription to about **£60 million in 1997**, resulting in annual savings for PPARC of at least £5 million.

SUPERANNUATION

40. Apart from the MRC, which has a fully funded system, the Councils operate a pension scheme funded out of grant in aid. The scheme is operated centrally, with each Council paying a percentage of its employees' salary costs, with the remainder top sliced from the Science Budget. The percentage contribution is an actuarially determined amount and a recent report by the Government Actuary's Department recommended that the rate of the employer's contribution should be increased from 13.6% to 15.6%. A technical adjustment to effect a transfer from the central superannuation reserve to the Councils will be made from 1 April 1998. The change is expenditure neutral.

ADMINISTRATION COSTS

41. The Government has made no secret of its wish for the administrative costs of Research Councils to be reduced so that the maximum percentage of the Science Budget can be used to support research and training. The Government's policy remains that the maximum resource should be expended, efficiently and effectively, in direct support of research, and that the costs and complexities of administering the system are minimised whilst ensuring propriety in the stewardship of public funds.

42. The Councils, in sharing this view, have made significant progress towards reducing their administration costs, including reductions resulting from the Senior Management Review overseen by the DGRC. The recent cross Council review of joint working revealed the scope for development of joint purchasing arrangements so as to exploit their collective strength in securing the best value for money for goods and services and a procurement advisor was appointed in 1996 to deliver these savings.

43. The administration costs of the Councils have to be seen in the context of the overall distribution of their funds as illustrated in Figures 3 and 4.

44. From now on, the allocations will contain a maximum figure in respect of the amount of money each Council can spend on central administration. Figures for 1997-98 are shown below. These are challenging targets and will require Councils to re-engineer their business processes to achieve increased efficiencies.

CENTRAL ADMINISTRATION COSTS	INDICATIVE 1996-97 £m	TARGETS 1997-98 £m
BBSRC	7.74	7.45
ESRC	3.53	3.47
EPSRC	17.60	16.88
MRC	13.40	12.85
NERC	8.31	7.97
PPARC	4.90	4.70
CCLRC ¹	13.20	11.94
TOTAL	68.68	65.26

Note

¹ Not included in last year's figures

FINANCIAL ALLOCATIONS

45. The allocations to the funded bodies for 1997-98, together with planning figures for the following two years are shown in Figure 1 and Table 1. In addition to the extra funding detailed above, these figures take account of a number of technical adjustments, including the reallocation to the Research Councils of funding previously separately identified under Foresight Challenge and High Performance Computing and, as explained in paragraph 40, a reallocation of the central superannuation reserve from 1998-99.

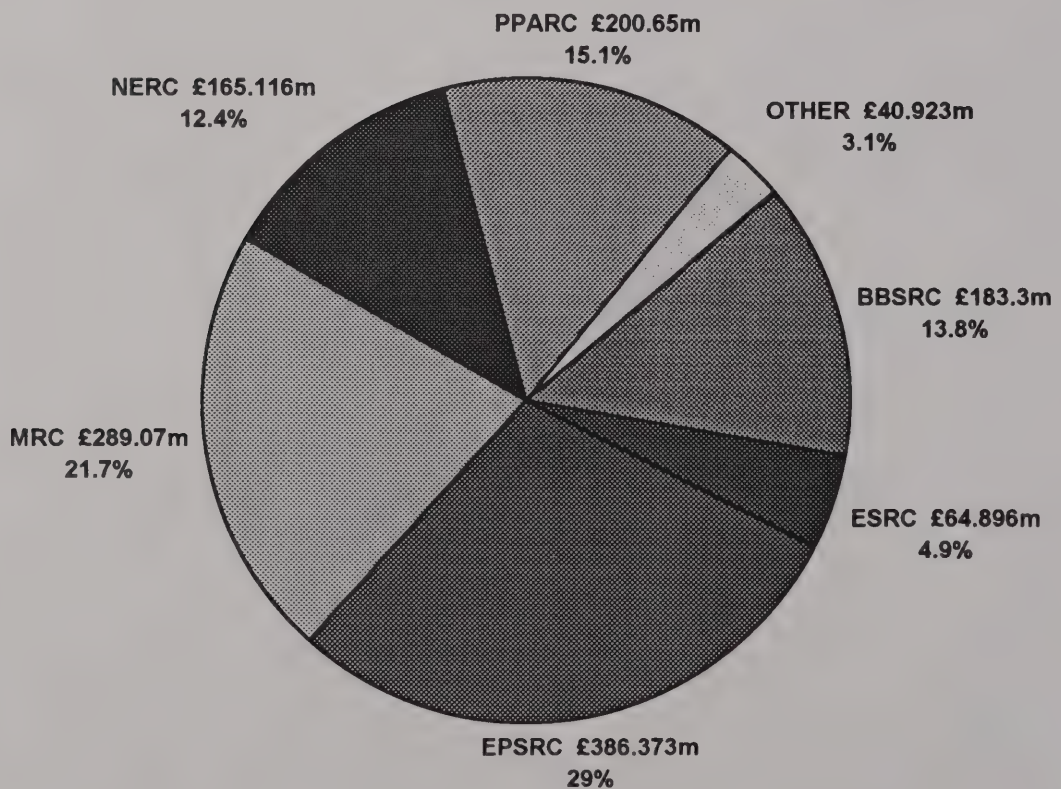
46. The planning figures for the second and third years listed in Table 1 provide for the on-going cost of recent new initiatives and for further rounds of ROPAs in 1998-99 and 1999-2000.

FIGURE 1

SCIENCE BUDGET 1997-98 £m

PPARC Figure includes International Subscription Reserve

ANALYSIS OF OTHER	
Pensions Supplement	£ 11.530m 0.87%
CCLRC	£ 1.450m 0.11%
Royal Society	£ 22.271m 1.67%
R A Engineering	£ 3.370m 0.25%
OST Initiatives	£ 2.302m 0.17%



TOTAL £1,330.33m

TABLE 1

SCIENCE BUDGET ALLOCATIONS AND PLANNING ASSUMPTIONS

	1996-97 *	ALLOCATION	PLANNING FIGURES	
	£m	1997-98 £m	1998-99 £m	1999-2000 £m
BBSRC	177.400	183.300	185.445	184.193
ESRC	63.710	64.896	66.021	65.132
EPSRC	378.230	386.373	381.098	379.050
MRC	282.720	289.070	288.949	287.618
NERC	164.650	165.116	169.131	168.295
PPARC	191.850	191.850	194.289	194.094
International Sub.Reserve	15.040	8.800	13.000	13.000
CCLRC	1.450	1.450	1.450	1.000
Pensions	9.870	11.530	9.547	9.547
Royal Society	21.820	22.271	22.621	22.871
Royal Academy	3.120	3.370	3.436	3.486
OST Initiatives	2.530	2.302	2.381	2.381
Foresight Challenge	-	-	1.000	2.000
TOTAL	1312.390	1,330.327	1,338.367	1,332.667

* The 1996-97 Allocations with the £5 million Foresight Challenge Funds allocated to the Research Councils.

FIGURE 2

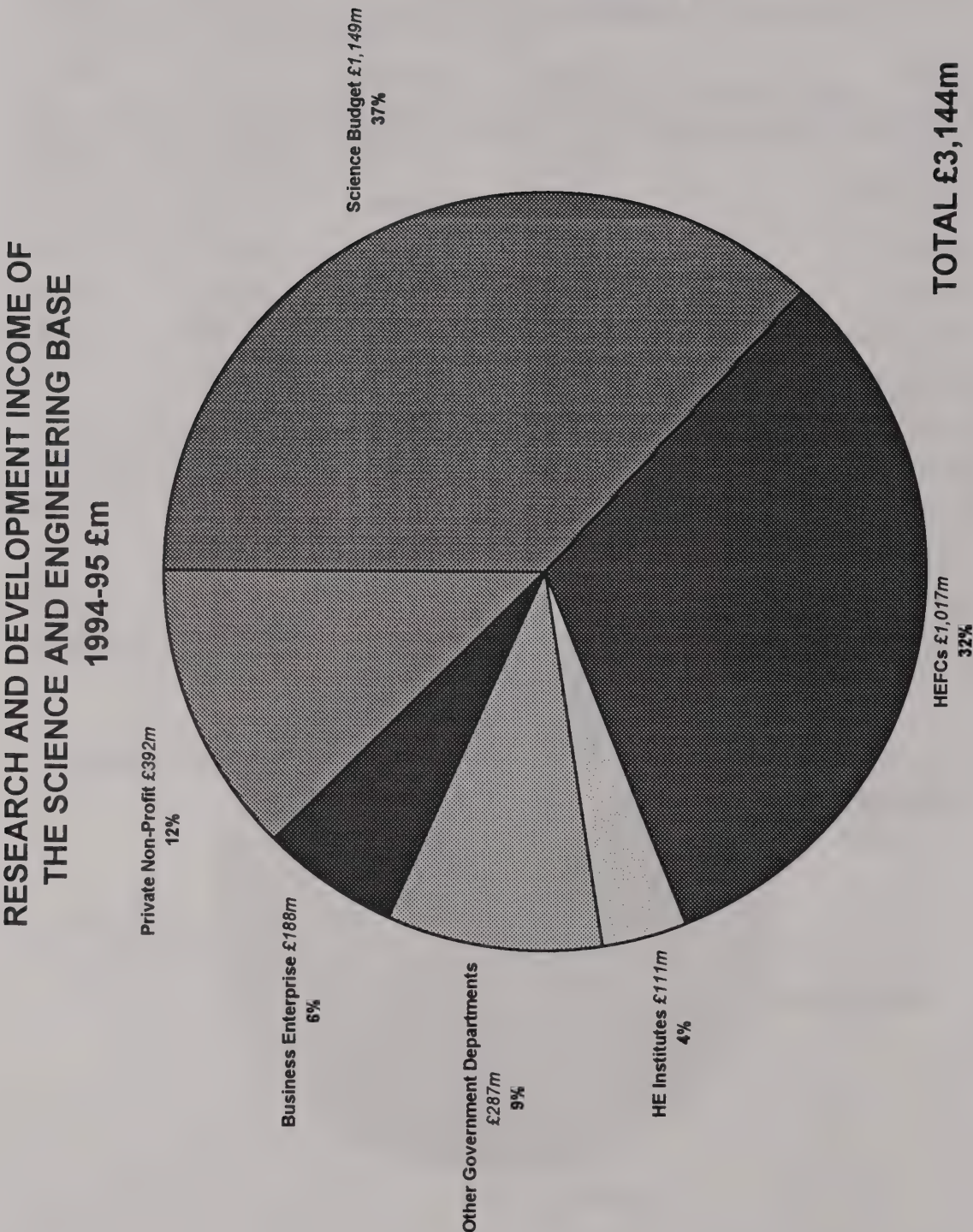
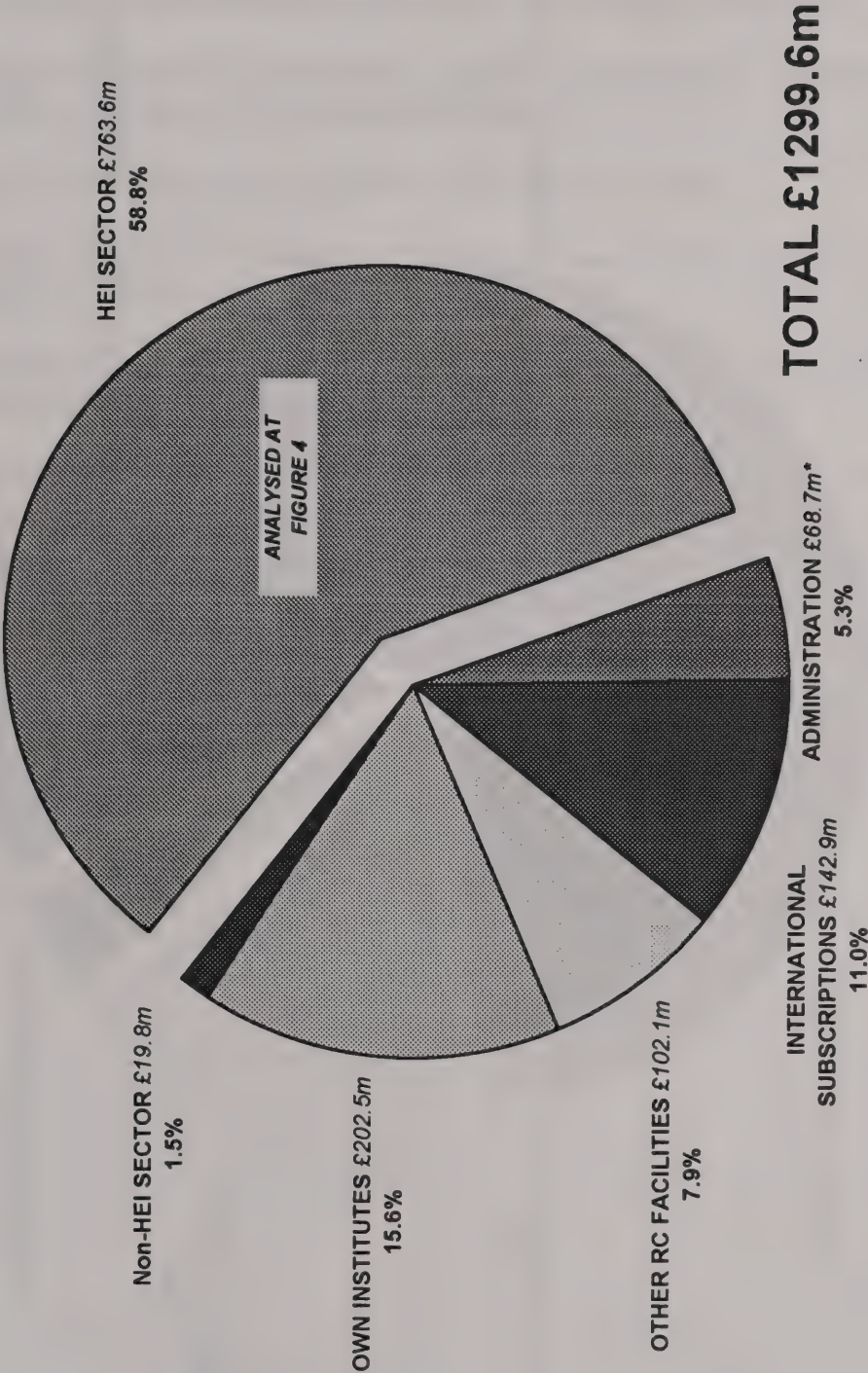


FIGURE 3

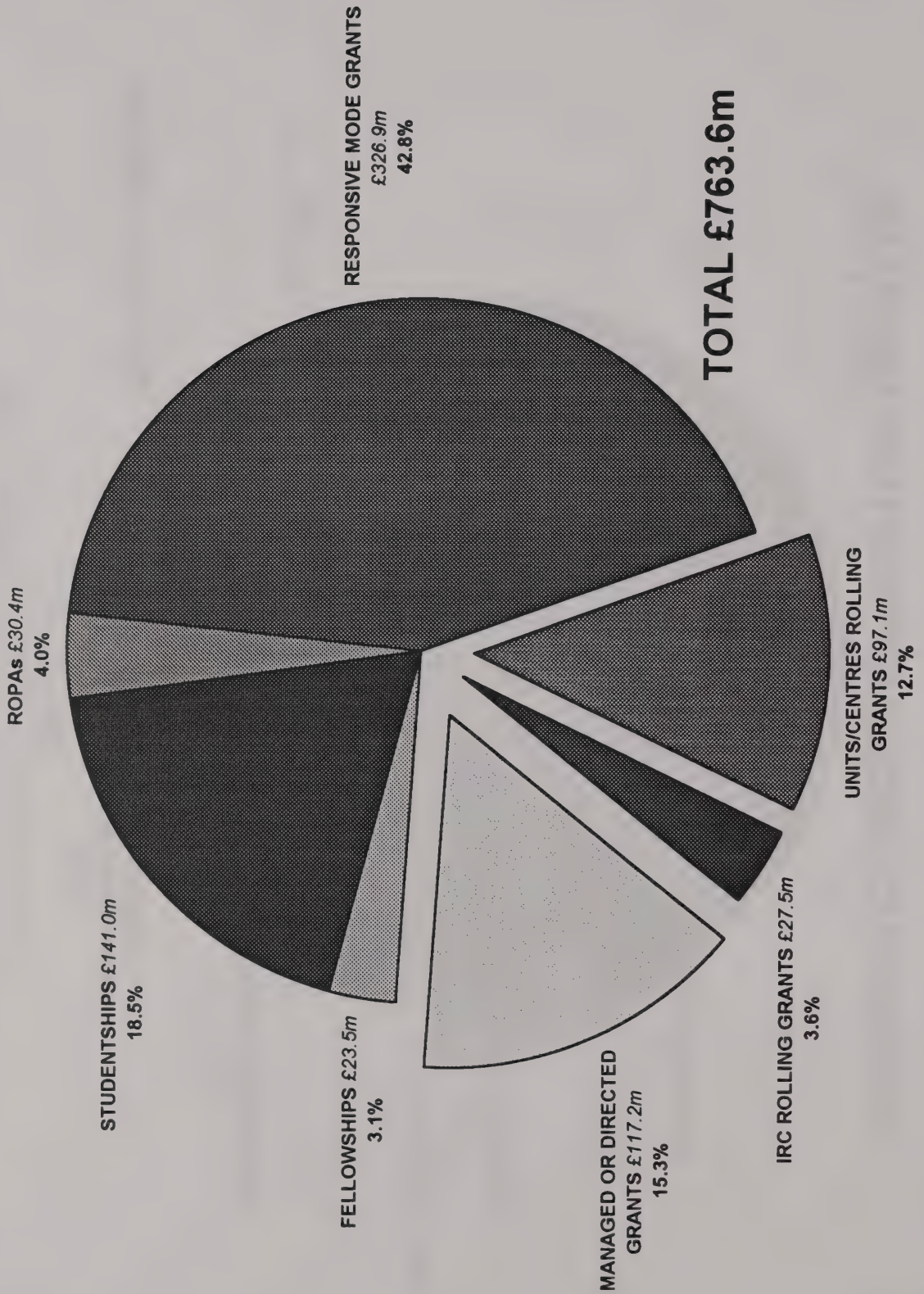
RESEARCH COUNCILS' EXPENDITURE 1996-97 £m



*Includes restructuring £14.7m

FIGURE 4

RESEARCH COUNCIL EXPENDITURE IN HEI SECTOR 1996-97 £m



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The 1993 Science, Engineering and Technology (SET) White Paper Cm 2250

Code of Best Practice for NDPB Board Members HM Treasury (June 1994)

The Research Councils' Royal Charters, granted on 16 December 1993 except for CCLRC which was granted on 14 December 1994.

Allocation of the Science Budget 1996-97, OST (16 January 1996)

The Director General of Research Councils' Review of the Science Budget Portfolio, OST (16 May 1995)

Government response to the Multi-Departmental Scrutiny of Public Sector Research Establishments (September 1995) Cm 2991

The Government's annual Forward Look of Government-funded Science, Engineering and Technology. (May 1996 Cm 3257-I)

Science, Engineering and Technology Statistics 1996, (May 1996 Cm 3257-II)

Report of the Initial Experiences with the ROPA Scheme, OST (October 1995)

THE POLICY AND OPERATING FRAMEWORK

The policy framework for the Research Councils is determined by Government which sets broad priorities between several classes of activity. Within that framework, and in keeping with the Haldane Principle (formulated nearly 80 years ago), day to day decisions on scientific merits are taken by the Research Councils.

This system is well established and continues to be confirmed by Government. This is reflected in some key statements:

- "The Secretary of State may, out of monies provided by Parliament, pay to any of the Research Councils, such sums in respect of the expenses of the Council as he may with the consent of the Treasury determine, and so far as relates to the use of expenditure sums so paid the Council shall act in accordance with such directions as may from time to time be given to it by the Secretary of State."
(*Science and Technology Act, 1965*)
- "...day to day decisions on the scientific merits of different strategies and projects should be taken by the Research Councils without Government involvement. There is, however, a preceding level of broad priority setting between general classes of activity where a range of criteria must be brought to bear. There is also a need in a system with six [now seven] Research Councils, for a mechanism to co-ordinate their activities and ensure that they apply common standards and user friendly methods."

and

- "The Cabinet Minister for Science is responsible for the strategy for the Science Budget. He will continue to make decisions on the grant-in-aid for each of the Councils. In the light of the powers given him by the Science and Technology Act 1965 to direct the use and expenditure of that money by the Councils, he will continue to be ready to issue broad guidelines to the Councils, as necessary."
(*Realising Our Potential, 1993*)

That means that Government decides, for example, whether to be in particular International Collaborations, whether some broad areas of science or activities should be given priority, how much money should go to each Council and indeed whether there should be a particular Council at all. It also means that Government has no involvement in deciding which people or which particular research projects are to be funded. Within this, the Councils are free - and are expected - to set their own policies.

"Realising Our Potential" went on to say that the Government wished to harness the intellectual resources of the Science and Engineering Base to improve economic performance and quality of life. This meant that decisions on priorities for support should be more clearly related to meeting the country's needs and enhancing the nation's wealth creating capacity. Relevance should therefore be taken into account, but in a context where long-term strategic and basic research is valued.

- "This is not to say that the Science and Engineering Base should be converted into short-term problem solvers for industrial customers. Industry does not want that; and nor does the Government intend to encourage or allow such a development. Rather, the Government intends to promote an effective partnership to the mutual benefit of all parties. This means that, far from being diverted into short-term problem solving, the Science and Engineering Base must concentrate on its proper role: the training of highly skilled men and women and the conduct of research at the frontiers of knowledge".
(*Forward Look, 1994*)

The working relationships between Government and the Research Councils are formalised in three documents: a Financial Memorandum; the letters from the then Chancellor of the Duchy of Lancaster to the Chairman of each Council; and the Resource Management Arrangements which came into effect on 1 April 1989. These documents are being consolidated for each Council into a combined Management Statement and Financial Memorandum for issue early in 1997.

The Research Councils all have a Code of Practice for Council Members based on a model prepared by HM Treasury. They also have a Code of Practice for staff as recommended in the first report of the Committee on Standards in Public Life.

